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Dkt: SP01-076**REMARKS/ ARGUMENTS**

Favorable reconsideration of this application is requested in view of the amendments above and the remarks which follow.

Disposition of the Claims

Claims 29, 31-33, 35, and 40-42 are pending in this application.

Rejections under 35 U.S.C. §112

I. Claims 29-39 were rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. In particular, the Examiner asserted that the complex steps and precise control which are critical or essential to the practice of the invention but not included in the claims are not enabled by the disclosure.

The phrase "complex steps and precise control" is used in the sense that several coordinated steps, usually on a micron to few millimeters scale, are required to fabricate a fiber-optic element. For example, to make a lensed fiber terminated with a spherical lens, four steps are typically involved. These steps include (1) aligning two fibers, (2) fusion splicing ends of the fibers, (3) taper-cutting one of the fibers, and (4) melting back the taper-cut fiber to form a lens. The diameter of the fiber may be on the order of 200 μ m in diameter, and the length of the lens may be just a few millimeters. Steps (2) through (4) involve delivering heat to the fibers. Typically, different amounts of heat are delivered in each step. Step (3) requires that the heat source is movable along the fiber to taper-cut the fiber, and so forth. It would be cumbersome at best to accomplish these steps using the elements of the 1970s houses. Even if these steps could be accomplished using the elements of the 1970s houses, the results would not be repeatable.

According to MPEP 2164.01, "[t]he test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation ... A patent need not teach, and preferably omits, what is well known in the art." Also, according to MPEP 2164.01(b), "[a]s long as the specification discloses at least one method of making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied."

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Claim 29 recites an apparatus for fabricating a fiber-optic element. The apparatus comprises a first chamber and a second chamber. This feature is disclosed in paragraph [0026] and Figures 5-7 of the disclosure. The second chamber is capable of maintaining an inert atmosphere. This feature is disclosed in paragraph [0030] of the disclosure. The apparatus includes a first and a second fiber holder coupled to opposite sides of the first chamber, the first and second fiber holders having grooves through which fibers can be inserted into the first chamber, said first and second fiber holders being capable of suspending and aligning two fibers in opposing relation inside the first chamber. This feature is disclosed in paragraph [0028] and Figures 5 and 6A of the disclosure. The apparatus includes a filament support structure movably disposed inside the second chamber. The filament support structure supports a filament loop which provides controllable and uniform heat. This feature is disclosed in paragraph [0029] and Figures 6A and 6B of the disclosure. The apparatus includes a valve which forms a seal between the first chamber and the second chamber and is operable to provide controlled access between the first chamber and the second chamber. This feature is disclosed in paragraph [0027]. The apparatus includes a positioning device coupled to the filament support structure. The positioning device is capable of extending the filament support structure into the first chamber, controllably aligning the filament with the fibers in the first chamber, and subsequently retracting the filament support structure into the second chamber. This feature is described in paragraph [0029].

From the foregoing, there is sufficient direction and guidance in the specification and drawings such that undue experimentation would not be required to make the apparatus recited in claim 29. Therefore, the disclosure is enabling with respect to claim 29. The disclosure is also enabling with respect to claims 31-33 and 35, which depend from claim 29. Withdrawal of the rejection of claims 29, 31-33, and 35 under 35 U.S.C. 112, first paragraph, is respectfully requested. Claims 30, 34, and 36-39 have been cancelled. Accordingly, rejection of these claims is moot.

II. Claims 29-39 were rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. In particular, the Examiner asserted that the elements that one can use to perform

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complex steps and precise control are omitted. Further, the Examiner asserts that "since the kitchen does not typically have the structure needed to make a fiber-optic element, there must be some other structure needed for the 'required' complex steps and precise control."

We restate herein that the phrase "complex steps and precise control" is used in the sense that several coordinated steps, usually on a micron to few millimeters scale, are required to fabricate a fiber-optic element. Claim 29 as amended includes the matter essential to practicing the invention. Withdrawal of the rejection of claims 29, 31-33, and 35 under 35 U.S.C. 112, second paragraph, is respectfully requested. Claims 30, 34, and 36-39 have been cancelled. Accordingly, rejection of these claims is moot.

Rejections under 35 U.S.C. §103

Claims 29-39 were rejected under 35 U.S.C. §103(a) as being obvious over Lestournel et al. (U.S. Patent No. 5,141,378). Claims 30, 34, and 36-39 have been cancelled. Accordingly, rejection of these claims is moot. Reconsideration of rejection of claims 29, 31-33, and 35 is respectfully requested.

Amended claim 29 recites an apparatus for fabricating a fiber-optic element which comprises a first chamber and a second chamber. The second chamber is capable of maintaining an inert atmosphere. The apparatus further comprises a first and a second fiber holder coupled to opposite sides of the first chamber. The first and second fiber holders have grooves through which fibers can be inserted into the first chamber. The first and second fiber holders are capable of suspending and aligning two fibers in opposing relation inside the first chamber. The apparatus further includes a filament support structure movably disposed inside the second chamber. The filament support structure supports a filament loop which provides controllable and uniform heat. The apparatus further comprises a valve which forms a seal between the first chamber and the second chamber and is operable to provide controlled access between the first chamber and the second chamber. The apparatus further comprises a positioning device coupled to the filament support structure. The positioning device is capable of extending the filament support structure into the first chamber, controllably aligning the filament loop with fibers in the first chamber, and subsequently retracting the filament support structure into the second chamber.

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Lestournel et al. disclose an active cell (12) in which a nuclear installation (18) is situated. The active cell (12) has an upper wall (10). An access orifice (14) traverses the upper wall (10). The access orifice (14) is extended into the cell by a sheath (16). The sheath (16) allows for access to be gained to a nuclear installation (18) inside the active cell (12). A lock (26) is coupled to the upper wall (10). The lock (26) includes openings (30, 32), which are aligned vertically with the access orifice (14). These openings are normally sealed off by doors (34, 36), which are controllable by a mechanism comprising a carriage. A mobile intervention chamber (38) is docked on the lock (26). When the openings (30, 32) are not sealed off, an intervention pole (94) can be extended from the mobile intervention chamber (38) into the sheath (16). At the end of the pole (94) are tools such as pliers (90) which can be used to perform operations in the cell.

Lestournel et al. do not disclose or teach an apparatus comprising "a first and a second fiber holder coupled to opposite sides of the first chamber, the first and second fiber holders having grooves through which fibers can be inserted into the first chamber, said first and second fiber holders being capable of suspending and aligning two fibers in opposing relation inside the first chamber," as recited in claim 29. The Examiner asserts that element 90 in the Lestournel et al. patent is the fiber holder. However, the element 90 is a pair of pliers (see col. 5, lines 17-20). Lestournel et al. do not disclose any structure or express the desirability of having a structure for suspending and aligning two fibers in opposing relation.

Lestournel et al. also do not disclose or teach an apparatus comprising "a filament support structure movably disposed inside the second chamber, the filament support structure supporting a filament loop which provides controllable and uniform heat," as recited in claim 29. The Examiner asserts that incandescent lights and halogen lights having filaments could be used as the lighting in the Lestournel apparatus and that it would be obvious to have some structure to move the lighting. However, Lestournel et al. disclose use of lighting merely to allow viewing of the contents of the apparatus. In claim 29, a filament loop which provides controllable and uniform heat is capable of delivering the appropriate amount of heat to fibers in order to thermally deform the fibers. The filament loop can be placed around the fibers to distribute the heat uniformly about the diameter of the fibers.

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From the foregoing, it is clear that claim 29 is not obvious over Lestournel et al. Withdrawal of the rejection of claim 29 over Lestournel et al. is respectfully requested. Claims 31-33 and 35, being dependent on claim 29, are likewise patentable in view of the foregoing arguments.

New Claims

Claims 40-42 depend from claim 29. These claims are fully supported by the disclosure.

Conclusion

The rejected claims have been amended and/or shown to be allowable over the prior art. Applicant believes that this paper is fully responsive to each and every ground of rejection cited by the Examiner in the Office Action dated April 14, 2004, and respectfully requests that a timely Notice of Allowance be issued in this case.

Please apply any charges in connection with filing of this response to Deposit Account No. 50-3202.

Respectfully submitted,

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